

Space News Roundup

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National Aeronautics and Space Administration

*Syncom salvage mission gets go-ahead

NASA and Hughes Aircraft Company have agreed to develop plans for a Space Shuttle mission to attempt to salvage the Hughes Leasat 3 satellite in orbit. The technically complex salvage attempt will provide an opportunity to extend the Shuttle's demonstrated capability to rendezvous with and salvage satellites in space.

The salvage attempt will take place under the terms of an agreement being negotiated by NASA and Hughes Communications, Inc. Hughes Communications, Inc., is a wholly-owned

subsidiary of Hughes Aircraft Company.

Negotiations with the underwriters insuring Leasat 3 (Syncom IV-3) have been conducted by Hughes in New York and London. Agreement has been reached with Lloyd's and other European underwriters to proceed with the attempted salvage. Negotiations are continuing with the American underwriters.

Although the joint salvage effort will include elements never before attempted, it is based in large measure on experience gained by NASA during its repair of the

Solar Maximum Mission satellite in April 1984 and its retrieval of the Palapa B-2 and Westar VI satellites in November 1984.

Pending an independent review of safety considerations by the Aerospace Safety Advisory Panel, the mission, as currently planned, will occur during Shuttle flight 51-I, now targeted for launch no earlier than August 24. This date marks the opening of the window for rendezvous with the Leasat spacecraft. Mission duration will be eight days to accommodate the Shuttle rendezvous phasing required.

Following two flawless Shuttle deployments and satellite activations of Leasat 1 and 2 in August and November of 1984, Leasat 3 failed to activate itself after successful deployment from the Orbiter *Discovery* on April 13, 1985, during mission 51-D. The satellite is currently drifting in low Earth orbit without command and telemetry capability. A rendezvous and salvage maneuver on April 17 went as planned, but the satellite failed to respond.

Immediately after the failure, Hughes initiated an intense investigation of all likely failure

modes. Although the cause of failure can be isolated to the components and circuits involved in activating the satellite, no specific cause of failure has been firmly determined because of the limited flight data available.

The salvage plan involves modification of the satellite during rendezvous by two of the Shuttle crew to permit ground command of the satellite. The activation sequence, normally performed by an automatic timer onboard the satellite, including turn-on of the telemetry, will then be performed

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*Crews named for probe deployments

Crews for the two interplanetary probe deploy missions set for next spring were announced last week.

Commanding flight 61-F, scheduled for launch no earlier than May 15, 1986, will be Frederick H. Hauck. He first flew as Pilot on Space Shuttle flight 7 in June, 1983, and was Commander of mission 51-A in November, 1984.

The 61-F mission is a flight to deploy the Ulysses (International Solar Polar) spacecraft. It will be the first mission using the liquid-fueled Centaur upper stage.

Other crew members include Roy D. Bridges, Pilot, and Mission Specialists David C. Hilmers and J. Mike Lounge. Bridges also will be Pilot of the Spacelab 2 flight scheduled for no earlier than July 15, 1985. Hilmers is scheduled to fly as a Mission Specialist on the DOD flight, STS 51-J in September 1985. Lounge will be a Mission Specialist on the 51-I flight in August 1985.

David M. Walker will command the Galileo mission, STS 61-G, set for launch on May 21, 1986, six days after the Ulysses launch. Walker flew as Pilot on STS 51-A.

The Galileo mission, also using the Centaur upper stage, will explore the environment of Jupiter and its moons.

Other crew members for 61-G include Pilot Ronald J. Grabe and

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The Astronaut Class of 1984 posed for a group picture recently in front of the PT-17 Stearman owned by class member Marsha Ivins. The group transitioned to full astronaut status May 30 following completion of their one year training period. Standing, left, Manley L. Carter. Front row, left to right, Sidney M. Gutierrez, Mark N. Brown, Mark C. Lee, Kathryn C. Thornton, Charles L.

Veach, James C. Adamson, George D. Low. Second row, left to right, Michael J. McCulley, Ellen L. Shulman, Kenneth D. Cameron, Lloyd B. Hammond, William M. Shepherd, James D. Wetherbee. Atop the plane, left to right, Frank L. Culbertson, John H. Casper and Marsha S. Ivins.

*Four from JSC among astronaut candidates

Four JSC employees are among the 13 new astronaut candidates announced last week.

Linda M. Godwin and Jerome Apt, both Payloads Officers in the Operations Division, Richard J. Hieb, a Flight Activities Officer in the Operations Division and Stephen S. Oswald, an aerospace engineer and pilot in the Aircraft Operations Division, will join the nine other candidates in the year long training and evaluation program which will begin later this summer.

Five of the candidates are civilians and two are women. There are three from the Navy, three from the Air Force, one from the Marine Corps and one from the Army.

The new candidates join 90 current members of the Astronaut Corps. The most recent group of 17 candidates, selected in 1984, will be converted officially to astronaut status on July 1. Counting the new group of 13, 157

persons have been named as NASA astronauts since the beginning of the program.

NASA considered 33 civilians from the selection rosters developed during the 1984 selection process and 133 nominees from the military services. Fifty-nine of the highest ranking applicants were interviewed and given medical evaluations at JSC.

The 13 candidates for the Astronaut Class of 1985 are:

Pierre J. Thuot—A Lieutenant in the U.S. Navy, Thuot is an airborne systems flight instructor at the U.S. Naval Test Pilot School in Patuxent River, Maryland. He was born May 19, 1955 in Groton, Connecticut. He graduated from the U.S. Naval Academy in 1977 with a B.S. in physics and earned a master's in systems management from the University of Southern California in 1985. He is the son of Mr. and Mrs. Clifford G. Thuot of Fairfax, Virginia.

Robert D. Cabana—A Major in

the U.S. Marine Corps, Cabana is an assistant operations officer with Marine Aircraft Group 12 stationed at Iwakuni, Japan. He was born Jan. 23, 1949 in Minneapolis. He graduated from the U.S. Naval Academy with a B.S. in math in 1971. He is the son of Mr. and Mrs. Theodore J. Cabana of Minneapolis.

Brian Duffy—A Captain in the U.S. Air Force, Duffy is director of F-15 tests with the 3247th Test Squadron at Eglin AFB, Florida. He was born June 20, 1953 in Boston. He graduated from the U.S. Air Force Academy with a B.S. in mathematics in 1975, and earned a master's in systems management from the University of Southern California in 1981. He is the son of Mr. and Mrs. Daniel E. Duffy of Rockland, Massachusetts.

Jerome Apt—Apt, a Payloads Officer at JSC, holds a B.A. in physics from Harvard College (1971) and a Ph.D. in physics

from the Massachusetts Institute of Technology (1976). He was born April 28, 1949 in Springfield, Massachusetts. He is the son of Mr. and Mrs. Jerome Apt, Jr. of Pittsburgh.

Michael A. Baker—A Lt. Commander in the U.S. Navy, Baker is a fixed wing test pilot tutor at the Empire Test Pilot's School at Boscombe Downs, United Kingdom. He was born Oct. 27, 1953 in Memphis. He graduated from the University of Texas in 1975 with a B.S. in aerospace engineering. He is the son of Mr. and Mrs. Clyde E. Baker of Lemoore, California.

Charles D. Gemar—A Captain in the U.S. Army, Gemar is Chief of the Operations Branch, Command Aviation Office, at Hunter Army Airfield, Georgia. He was born Aug. 4, 1955 in Yankton, South Dakota. Gemar graduated from the U.S. Military Academy at West Point in 1979 with a B.S. in engineering. He is the son of Mr.

and Mrs. Leighton A. Gemar of Scotland, South Dakota.

Linda M. Godwin—Godwin, a Payloads Officer at JSC, holds a 1974 B.S. in math and physics from South Eastern Missouri State University, a master's in physics from the University of Missouri (1976) and a Ph.D. in physics from the University of Missouri (1980). She was born July 2, 1952 in Cape Girardeau, Missouri. She is the daughter of Mr. and Mrs. James M. Godwin of Oak Ridge, MO.

Terence T. Hendricks—A Major in the U.S. Air Force, Hendricks is an F-16 test pilot with the 57th Fighter Weapons Wing, Tactical Air Command, at Edwards AFB. He was born July 5, 1952 in Bryan, Ohio. He holds a B.S. in civil engineering from the U.S. Air Force Academy (1974) and a master's in public administration from Golden Gate University (1982). He is the son to Ms. Martha B. Reisinger of

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Space News Briefs

Steering to be upgraded

GM buying Hughes Aircraft

General Motors Corp. announced last week it is buying Hughes Aircraft Co. from the Howard Hughes Medical Institute in one of the biggest non-oil business mergers in history. The \$5 billion cash and stock deal would bring Hughes under the GM umbrella as a subsidiary to be known as GM Hughes Electronics Corp. GM said the subsidiary would operate independently with its own board of directors. The new division also would include GM's Delco Electronics Division, the AC Spark Plug Division's instrument and display systems operation and Delco Systems Operations. The sale, which makes the Hughes Medical Institute the country's largest philanthropy, was conducted by the investment firm of Morgan Stanley & Co., the Associated Press reported.

ESA joins in Station Phase B effort

NASA Administrator James M. Beggs and European Space Agency Director General Reimar Luest signed a memorandum of understanding June 3 for ESA's participation in the Space Station Program. Under the agreement, NASA and ESA will conduct parallel Phase B studies for the next two years. ESA will study a pressurized module that could be used as a manned laboratory, a free-flying experiment platform for low inclination and polar orbits, or as a resources module. ESA studies will include ground facilities for mission preparation and support and a data transmission system. The cost of the ESA studies, at 1985 exchange rates, is estimated at about \$64 million. NASA has previously signed similar agreements with Canada and Japan.

GLOMR failure report issued

The Global Low Orbiting Message Relay Satellite (GLOMR) wouldn't eject from the *Challenger* on STS 51-B as planned because two switches designed to activate bolt cutters failed. That was the conclusion of an eight-member review team which issued its report last week. The Northern Utah Satellite (NUSAT) and GLOMR were to have been the first satellites deployed from canisters aboard the Shuttle. The NUSAT was deployed successfully.

Bulletin Board

"Earth Whispers" is Burke Baker summer show

Science fiction mixes with science fact in "Earth Whispers," the summer show being offered through Aug. 25 at the Burke Baker Planetarium in Hermann Park. The show recreates the odyssey of a television signal as it speeds outward from Earth and traces its pathway through the universe. The show times are Monday through Friday at 2 and 3 p.m. and Saturday and Sunday at 2, 3 and 4 p.m. Admission is \$2 for adults and \$1 for children. For more information, call 526-4273.

BAPCO to meet June 18

The next regular meeting of the Bay Area PC Organization (BAPCO), will take place at 7:30 p.m. June 18 at the Sheraton Kings Inn on NASA Road 1. BAPCO is a microcomputer users group whose members share a common interest in IBM PCs and compatibles.

UH-CL offers variety of computer classes

A variety of computer classes and a computer day camp are being offered for students in grades 2 to 12 this summer at the University of Houston-Clear Lake. Courses will include instruction in BASIC, writing with a computer, LOGO and parent/child classes. A variety of dates and sessions are available. For more information, contact the Center for Cognition and Instruction, UH-Clear Lake, P.O. Box 270, Houston, 77058.

Robotics workshop set for June 27-28

The first annual workshop on robotics and expert systems, ROBEXS '85, will be held June 27 and 28 at the Gilruth Recreation Center. The workshop is sponsored by the Instrument Society of America and the JSC Mission Planning and Analysis Division. The agenda will cover 20 key technical areas and will include two tutorials, "Expert Systems" and "Robotics and Automation," and two panel discussions, "Distributed Expert Systems" and "Robotics and Automation." Daniel Hermann, Director of Space Station Concept Development at NASA Headquarters, will deliver the keynote during a special session from 6:30 to 8:30 p.m. June 27. For more information, call Dr. Zafar Taqvi at 333-6544, Robert Brown at x4751 or N.S. Rajaram at 749-4835.

Pressure Systems Week observed

June 16 through June 22 has been designated Pressure Systems Week at JSC in an effort to increase awareness of the hazards associated with pressure systems both at home and in the workplace. Since 1976, JSC has operated a certification program, eliminating many hazards. Basic rules for operating pressure systems include identifying the contents of all cylinders, keeping protective caps in place, storing cylinders in clean, dry and well-ventilated areas and keeping away from heat sources. Above all, experts say, do not force connection fittings or tamper with safety devices on cylinder valves. For more information on pressure systems, call x3194.

NASA Singles plan activities

NASA Singles, an organization of single professionals under 40 who live in the NASA area, offers a variety of social activities for interested persons. On June 22, the group will sponsor a visit to the Comedy Showcase. On June 23, the monthly organizational meeting will be held, and on June 29, the group will sponsor a dance at the Hobby Hilton. For more information, call 337-5381.

Gilruth Center News

Call x3594 for more information

Home maintenance and repair — Learn residential carpentry, drywall and plaster patch, tilework, cabinet installation and a variety of odds and ends for handiwork in the home. The course will include demonstrations, hands-on experience and the opportunity for students to discuss their specific needs. The class meets for six weeks from 7 to 9 p.m. Wednesdays beginning July 10. The cost is \$40 per person.

Table tennis tourney — Come and test your skills at the first annual JSC Table Tennis Tourney. This tournament, for doubles only, will run from 11 a.m. to 4 p.m. June 22. Trophies will be awarded to the top three finishers. Registration is on a first come, first served basis. The cost is \$2 per person. For information, call Helen at x3594.

Tennis tourney — Matches for men and women will highlight a single elimination tennis tournament to be held beginning at noon July 20 at the Rec Center. The entry fee will be \$10 per person and trophies will be awarded.

The Space Shuttle's nose wheel steering capability, used only on an experimental basis thus far in the program, is expected to be upgraded to operational status by this fall.

Until that capability becomes operational on the vehicles in the Shuttle fleet, NASA intends to choose between the Kennedy Space Center and Edwards AFB as the primary end of mission landing site on a flight by flight basis.

Brake damage to the Orbiter *Discovery* following the STS 51-D mission has been attributed, in part, to crosswind conditions at the Kennedy Space Center Shuttle landing strip and the necessity to use the main gear braking system for differential steering.

The use of nose wheel steering, NASA said, would allow Shuttle

pilots to use the brake system for stopping Orbiters, rather than for braking and steering combined.

The nose wheel steering capability was designed into the Shuttle system but has been used only on an experimental basis so far. Upgrading the system to operational status has been in work for the past year and is expected to be fully implemented by the fall of this year. NASA has instrumented the *Challenger* to provide better landing condition data, and also plans to add instrumentation to the landing gear system of the *Discovery*.

The last flight of the Shuttle, STS 51-B, landed at Edwards because of the tire and brake damage experienced on the 51-D flight. NASA said the lakebed landing offered more margin for stopping the Orbiter and expanded

opportunities for evaluation of landing conditions.

Brake damage seen after the landing of 51-D was similar to that experienced on the STS-5 mission. In both cases, damage was caused by the stator in the brake overheating. The overheating to *Discovery's* brakes on 51-D was due primarily to the crosswind condition at the time of landing.

In the 17 Shuttle missions so far, 68 individual brake systems have been used, with 27 receiving no damage at all, another 27 receiving slight damage, and 14 recording significant damage in which either one or more stators or rotors had problems.

NASA said it considered the brake problem "evolutionary," but that none of the planned Shuttle missions are precluded by it.

Landing software augmented

Since the beginning of the Space Shuttle Operational Flight Test Program in 1981, mission rules have called for the use of any available 10,000 foot runway in the unlikely event of an on-board emergency necessitating immediate landing of the vehicle for reasons of crew safety or vehicle integrity. This is consistent with the terms of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

A recent expansion of the Shuttle on-board software capability allows the storage of 20 to

30 separate landing thresholds; new locations (the "dial a runway" capability) will be in addition to existing CONUS locations and TAL/TPL sites.

Pre-positioning the abort airfield parameters in advance of the flight permits more rapid reaction in the unlikely event of a life-threatening emergency, since there is no need to upload abort site data at the time of the emergency.

This software augmentation requires no advance deployment of personnel and no pre-mission preparations at the locations selected; notifications will be made if an actual landing is

necessary.

Initial augmentation is planned for Mission 51-G. Expansion to fill available capacity will occur as mission rules require.

The new locations are: Kinshasa, Zaire; Amilcar Cabral, Cape Verde; RAF Brize-Norton, United Kingdom; Anderson AFB, Guam, Marianas Islands; Hoedspruit, South Africa; Darwin, Australia; Nassau, Bahamas; Santo Domingo, Dominican Republic; Suda Bay, Crete; Dyarbakir, Turkey; Rio Gallegos, Argentina; Riyadh, Saudi Arabia; Sydney, Australia; Las Palmas, Canary Islands; Diego Garcia, Chagos Archipelago.

Crews named

(Continued from page 1)

Mission Specialists John M. Fabian and James van Hoften. Grabe is scheduled to fly as Pilot of the 51-J mission in September 1985. Fabian, who first flew on STS-7, is a Mission Specialist on STS 51-G, scheduled for launch this June. Van Hoften first flew on the Solar Maximum satellite repair mission, 41-C, in April, 1984. He also has an upcoming flight, mission 51-I in August this year, to salvage the Syncom IV-3 satellite.

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by ground command. The modifications made during the rendezvous will bypass all hardware likely to have been the cause of the Leasat 3 failure.

In its dormant state the satellite is experiencing temperatures well below the design and test limits of the liquid and solid propellant systems, electronic units, batteries and all other components. This factor, when combined with the complexity of the modifications to be made to the satellite by the Shuttle crew, appreciably limits the chances of success, NASA said.

Leasat 4 will be launched during the same Shuttle flight. If the 51-I

mission is completely successful, Leasat 3 and 4 will fulfill Hughes Communications' commitments to the Navy. Modifications to the Leasat 4 satellite are in progress which will also permit ground command of the post-deployment sequence if necessary.

Hughes Communications, Inc., will contract with NASA for the costs incurred in preparing for and executing the mission. NASA is still assessing the amount of these charges. The details of the salvage plan are currently being developed at JSC, and a Shuttle launch services agreement will be signed in the near future, officials of NASA and Hughes said.

Astronaut candidates named

(Continued from page 1)

Oak Harbor, Ohio, and Mr. Terry W. Hendricks of Montpelier, Ohio.

Richard J. Hieb—Hieb, a Flight Activities Officer, works in the Operations Division at JSC. He was born Sept. 21, 1955 in Jamestown, North Dakota. He holds a B.A. in math and physics from North West Nazarene College (1977) and a master's in aerospace engineering from the University of Colorado (1979). He is the son of Mr. and Mrs. Fred Hieb of Jamestown.

Tamara E. Jernigan—Jernigan is a research scientist at the NASA Ames Research Center. She was born May 7, 1959 in Chattanooga. She holds a B.S. in physics from Stanford University (1981), a master's in engineering science from Stanford (1983) and a master's in astronomy from the University of California at Berkeley (1985). She is the daughter of Ms. Mary P. Jernigan of Santa Fe Springs, CA, and Mr. Terry L. Jernigan of Lynwood, CA.

Carl J. Meade—A Captain in the U.S. Air Force, Meade is an Experimental Test Pilot Instructor at the U.S. Air Force Test Pilot

School at Edwards AFB. He was born Nov. 16, 1950 at Chanutte AFB, Illinois. He holds a B.S. in electronics engineering from the University of Texas (1973) and a master's in electronic engineering from the California Institute of Technology (1975). He is the son of Mr. and Mrs. John Meade of Universal City, Texas.

Stephen S. Oswald—An Aerospace Engineer and Pilot at Ellington Field, Oswald works in JSC's Aircraft Operations Division. He was born June 30, 1951 in Seattle. He holds a B.S. in aerospace engineering from the U.S. Naval Academy (1973). He is the son of Mr. and Mrs. Harold Oswald of Bellingham, Washington.

Stephen D. Thorne—A Lt. Commander in the U.S. Navy, Thorne is a Squadron Aviation Safety Officer with STRKFITRON 132 at the Naval Air Station at Cecil Field, Florida. He was born Feb. 11, 1953, in Frankfurt-on-Main, West Germany. He holds a B.S. in engineering from the U.S. Naval Academy (1975). Thorne is the son of Mr. and Mrs. James H. Thorne of Anderson, South Carolina.

Selection policy changes

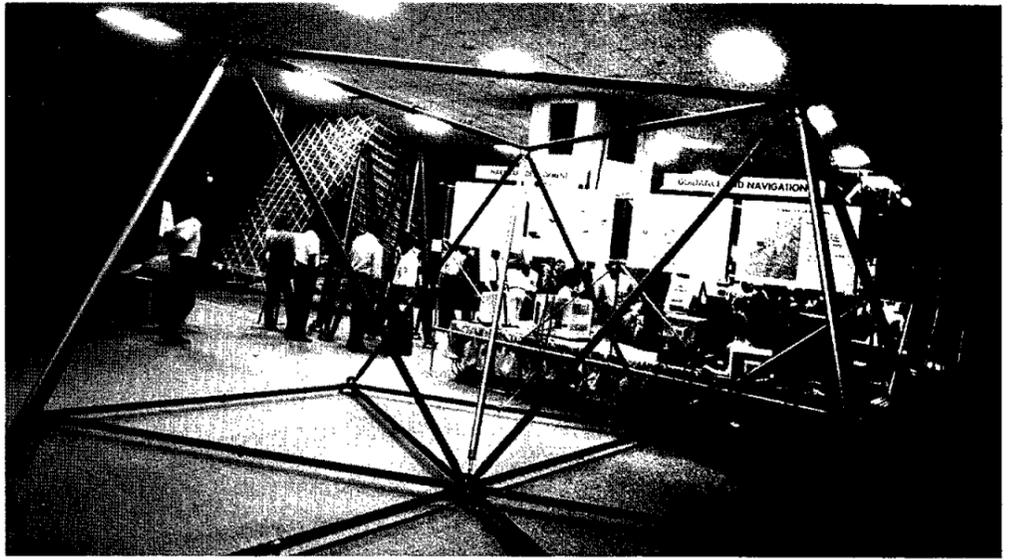
NASA this summer will change the way in which it solicits applications for astronaut positions.

Applications from civilians will be accepted on a continuing basis beginning August 1, 1985. The military services will provide nominees to NASA on an annual basis. Selections usually will be made in the spring of each year with successful candidates reporting in the summer.

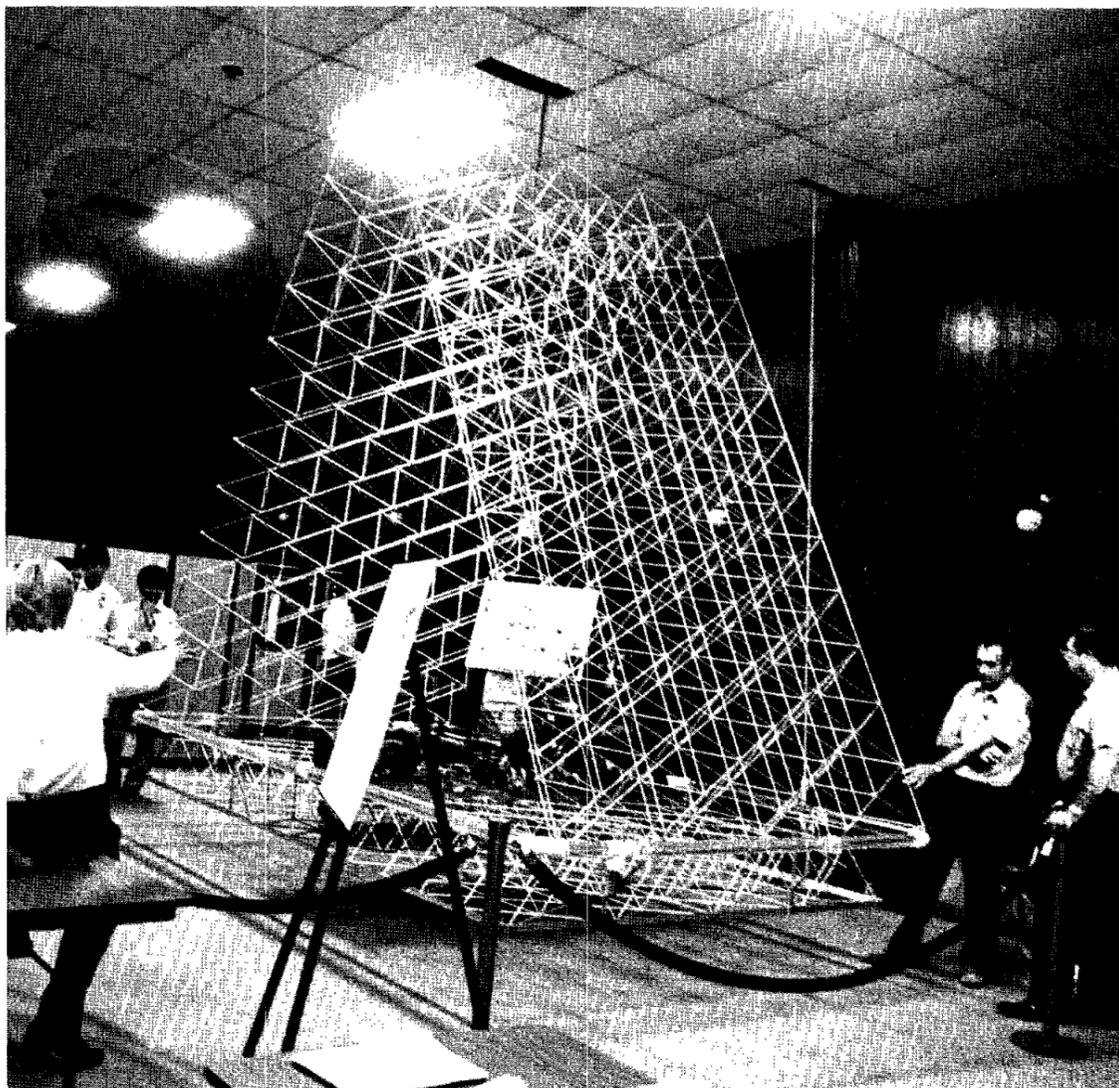
The number of candidates selected each year will be determined by mission requirements and the attrition rate of the Astronaut Corps.

Both Pilot and Mission Specialist astronauts will be selected. Pilot astronauts are responsible for control of the Space Shuttle during launch and entry and onorbit maneuvers. Mission Specialist responsibilities include management and operations of Space Shuttle systems and payloads.

Engineering exposition celebrates technology



Filling both sides of the Gilruth Recreation Center to capacity, the wares of the Engineering Directorate were displayed last week during the second Engineering Exposition. Exhibits included articles from the world of Crew Systems, including a space rescue ball and a Shuttle potty; examples of large deployable and erectable space structures, including a fluid momentum system which was shown damping out motion in a delta-shaped space station mockup; a Spacelab mockup and a variety of other devices in disciplines ranging from tracking and data acquisition to software development. Hundreds of employees and their families attended the two-day show.



Roundup Swap Shop

All Swap Shop ads must be submitted on a JSC Form 1452. The forms may be obtained from the Forms Office. Deadline for submitting ads is 5 p.m. the first Wednesday after the date of publication. Send ads to Roundup, AP3, or deliver them to the Newsroom, Bldg. 2 Annex, Room 147. No phone in ads will be taken.

Property & Rentals

For rent: Friendswood/Forest Bend, 3-2-2, ceiling fan, refrigerator, new paint, walk to school, \$525/mo. Call 482-6609.

For sale: Baywind II townhome, 3-2-3, quiet, end unit up/down w/FPL, kitchen, eat area and dining in living room, two pools, wt. room, appliances, one minute to JSC, owner will finance equity, assume existing loan, \$58,900. Call 488-1636.

For sale: League City, 3-2-2 plus carport, quiet wooded area, water access, many extras, \$55,000. Call 538-4214 after 5 p.m.

For rent: League City, 2-2, newly renovated, large yard, central AC. Call Darrell or Clarence, x2001.

For sale/lease: Pasadena, 4-3 townhouse, close in, fenced, ten acres, lease \$600, sell \$54,000. Call Damewood, 482-5572.

For sale: 1983 Wayside mobile home, 14' x 56', two BR, near Texas Tech campus, garden bath, wet bar, dual air conditioning and skirting, nothing down, assume loan. Call Easley, x2673, x4311 or 482-7112 after 5 p.m.

For sale/lease: Near NASA, two BR condo, appliances, cable, W/D connect., fenced patio with storage room, \$375/mo. less move credit. Call Cecil Gibson, x3918 or 488-0719.

For sale: Nassau Bay town house, 4-2-2, 2,200 sq. ft., new carpet, paint, roof, sundeck, large garage, 20' FPL, atrium, purchased for \$127,500, sell \$114,900. Call Jerry, x3561.

For rent: Galveston luxury condo, ocean view on seawall, two BR, kitchen, pool, tennis courts, two day min. Call Clements, Jr., 474-2622.

For sale: 3-2-5-2, close to school/park/pool, wet bar, hot tub, 1,750 sq. ft., \$69,000 OBO. Call 554-2224 after 6 p.m.

For lease: Forest Bend townhouse, 2-1.5, ceiling fans, patio, \$395/mo. Call Betty Craig, x4031 or 420-2936.

For sale: Friendswood, 3 BR home, cathedral ceiling, FPL, drapes, trees, assume 9.5% VA, low equity, total \$49,000. Call 482-7546.

For sale/lease: Egret Bay condo, 2-2-2, W/D, microwave, refrigerator, fans, FPL, pools, boatramp, 24 hr. security, \$450/mo., sell 40's. Call Lee, x3431 or 333-9447 after 5 p.m.

For sale: Brazoria County, lakefront lot with access to fishing, tennis, swimming and horseback riding, assume 12%. Call Don, 280-6307 or 554-6205.

For sale: Friendswood, 3-2-1, large fenced yard w/storage building, new A/C, water heater, range, four ceiling fans, two blks. from elementary school, \$49,000. Call Pat, 280-3519 or 482-8233 after 5 p.m.

For lease: League City/Landing, 2-1-1 on corner lot, ceiling fans, refrig., W/D, microwave, garage door opener, lawn mower, \$450/mo. plus deposit. Call Chuck Borne, x6226 or Mike Krosky, 780-1930 evenings.

For rent: Almeda Mall/Kingspoint, 3-2-2, carpeted, drapes, dishwasher, disposal, breakfast area, ceiling fan, fenced yard, beautifully landscaped, clean, no pets, \$525/mo. Call 649-0613 after 5:15 p.m.

For sale: University Green, 2-2-2, Village Builder's patio home, corner lot, cathedral ceilings; FPL, near tennis courts, pool, owner financing, \$94,500. Call 480-7413.

For sale: League City, Pecan Forest, 3-2-2, FPL, open beam ceiling, immaculate, excellent condition, no down, less than \$1,000 closing, peek in windows at 212 Pecan Drive, best offer. Call 554-6200.

For sale: Fairfax, 3-2-2, large master, dining & breakfast, new carpet/paint, FPL, central air/heat, lots of pine/oak trees, area pool, close to school/mall, \$59,000. Call Jan Chen, 486-4420 x409 or 484-6286.

For lease: Meadowbend, 3-2-2, like new, convenient to NASA, \$525/mo. Call Glenn, x6541 or 486-0462.

For sale: El Dorado Trace, 1 BR condo, immaculate, new carpet, ceiling fans, W/D, pool, rec. room, bargain price, \$28,000, low down payment. Call Glenn, x6541 or 486-0462.

For lease: Baywind II, one BR condo, FPL, kitchen appliances, W/D connect., exercise room. Call Jim Wiltz, x5437 or 944-0451 after 6 p.m.

For sale: 1.8 acres in Friendswood, all utilities, financing available. Call Janice, x5867 or 482-6888.

For sale: Pasadena near Beltway 8 and 225, 3-1-2, trees, C/A & H, two ceiling fans, carpet, hardwood floors, \$44,200 or \$413/mo., 10% FHA with \$10,000 down. Call Michael, 486-1332 or 477-7059.

For lease: Kirkmont, 4-2-2, large den, FPL, dishwasher, disposal, fenced, excellent condition, \$575/mo. plus deposit. Call 484-3396 after 6 p.m.

For sale: Middlebrook II, 4-2-2a, contemporary design, open floor plan, vaulted ceiling in living room, well maintained, \$92,900. Call Ron, x3821 or 488-7387.

Vacation in Galveston ocean front condo, two BR, fully furnished, pool & tennis, reserve week or weekend now for July or August. Call 486-9391.

Cars & Trucks

1978 Buick Regal LTD, two dr., hardtop, PS, PB, AC, stereo, clean, \$2,400. Call 471-3425.

1984 Toyota, 4wd pickup, loaded, must sell. Call 554-2440 after 5 p.m.

1968 Volvo 122s, 4 spd., running condition, best offer. Call Karen, x5514 after 4 p.m.

1980 Honda Civic, 30K miles, excellent condition, \$3,500. Call 280-8033.

1976 Ford Elite, two dr., 351 engine, good condition, cruise, air, new tires, \$1,400. Call Jennifer, x3584.

1971 Plymouth Valiant Scamp, slant six engine, runs well, body in bad shape, first \$100 gets it. Call 488-5967 after 5 p.m.

1981 Ford PU F-150, 1/2 ton, AC, auto., trans., PS, long bed, clean, V8, \$4,295 or trade. Call 280-0454.

1980 Cadillac Sedan de Ville diesel, 56K mi., leather, all power, fully equipped, runs perfect, clean, \$5,400. Call 326-3370.

1977 Monte Carlo Landau, brown/beige, AM/FM, power sunroof, leather interior w/swivel seats, 62K miles, original owner, \$1,500. Call Kimberly, 488-9005 x270 or 480-0244 after 5 p.m.

1980 Datsun PU, four spd., AC, low mileage, \$3,695; 1980 Eldorado Biarritz, clean, below blue book, \$7,995. Call 488-5908 after 6 p.m.

1976 Chevy Caprice, blue, four dr., AC, AM/FM/cassette, 61K miles, \$1,800. Call Mary, x2876 or 488-2271.

1979 Buick Electra, burgundy, loaded, 56K miles, excellent condition, \$4,850. Call 474-4535.

1985 Corvette, red/graphite, leather, no Z-51, all other options, has 36/36 warranty, low miles, must sell. Call 484-3396 after 6 p.m.

1985 Dodge PU 100, four speed, long bed, good gas mileage, six cylinder, make offer. Call Edna, x5441 or 332-4732.

1981 Datsun 310GX, sunroof, 40 mpg highway, \$3,500 OBO. Call Debbie, x4471 or 554-6643 after 5 p.m.

1979 Ford van, two-tone blue, six cylinder, PS, PB, AC, AM/FM, has carpeting, paneling, dual-fuel tanks. Call Valerie, x6125 or 409-935-1149 after 5 p.m.

Black Fiero, gray interior, moving-must sell, just pick up pymts., \$336.61/mo. Call 559-2346 after 6 p.m.

1982 Datsun 200 SX, deluxe hardtop coupe, auto., AC, PS, PB, cruise control, good gas mileage, SL package, excellent condition, \$6,895. Call Pauline, x6308 or 422-2437.

1978 Buick turbo sport coupe, 80K miles, clean interior, excellent transportation, \$2,300. Call Ed, 528-4882 after 6 p.m.

1984 Ford F150 PU, model XL, V8, with overdrive, AM/FM, PS, tilt wheel, AC, only 10K miles, \$8,000. Call Dick Bishop, 280-6890 or 326-1666.

1976 Triumph TR-7 coupe, red/black, AM/FM, good tires, good body, engine needs work. Call Jerry, x3458 or 480-8220 after 5 p.m.

1974 Buick Century, good transportation, AC, AM/FM, four good tires, \$300. Call Jayne, x4045 or 280-9791.

1985 Camaro Berlinetta, V8, AC, PB, PS, tilt, cruise, PW, AM/FM/cassette, T-top, low mileage, \$12,750. Call 488-1326 after 4:30 p.m.

1976 Chevy Malibu classic station wagon, no title, \$250. Call Lewis, x3939.

1977 T-Bird, high mileage but good condition, fully loaded, \$1,200 OBO. Call 482-4365 after 5 p.m.

1979 Honda Accord LX hatchback, five spd., AC, FM/cassette stereo, steel-belt radial tires, \$3,000 OBO. Call Kathy, 488-2405 after 4 p.m. or Jeff, x4021.

1968 Shasta travel trailer, 16 ft., sleeps six, butane stove, ice box, toilet, electric brakes, good tires. Call Mayhew, x3701 or 333-3291.

1978 Buick Regal LTD, air, cruise, PS, PB, stereo, sportswheels, vinyl top, 84,500 miles, \$2,650. Call 471-3425.

Open road mini motor home, four kw generator, roof and dash air,

excellent condition, \$6,500. Call Jack Day, x4731 or 664-9472.

1954 Chevy classic, restored, excellent condition, \$2,100. Call Melita, 427-2759.

1972 Mark IV Lincoln, no rust, garaged, body like new, 7,300 actual miles, \$2,500. Call 488-5564.

1977 Chrysler New Yorker, 50K miles, excellent mechanical condition, \$1,500. Call 481-5019.

1967 Mustang coupe 200 Spirit, good condition, must sell, \$2,900 OBO. Call Charles Simon, 480-1889 x264 or 538-2339.

Boats & Planes

Piper Lance aircraft, six-place club seating, \$85/hr. wet. Call Damewood, 482-5572.

1981 Tidecraft bass boat, 80 h.p. Mercury, power tilt and trim, aerated live wells, depth finders, trolling motor, etc., \$4,950. Call Don, 280-6307 or 554-6205.

Gulf Coast 20 sailboat, little dude trailer, British seagull outboard, excellent rigging, sails, \$3,400. Call Dick Bishop, 280-6890 or 326-1666.

1975 27 ft. Dufour sailboat, six sails, Volvo diesel, RDF, many extras, sell or trade for bigger boat plus cash. Call Catherine, x3221 or 480-9064.

23 ft. cabin cruiser twin Volvo 130 engines/outdrives, trailer, \$7,500. Call 326-2805.

Chrysler Buccaneer sailboat, Champion edition, 18 ft., three new sails, excellent condition and ready to sail. Call Jim or Barbara, x4564 or 488-1946.

1968 23 ft. Formula Twin, I/O, AC, new Lorán C, new VHF, depth finder, newly rebuilt tandem trailer with electric winch. Call Jack Waite, x4241 or 332-2983.

Bayliner, 22.5 Skagit Cuddy Camper, 160 h.p. Volvo I/O, low hrs., dual battery, CB, stove, sink swim platform, stereo, depth finder, full canvas, galv. E-Z loader tandem trailer, new axles and brakes, \$6,500. Call Ron, 488-0131 or J.T. 488-3452 after 6 p.m.

16 ft. Quachita tri-hull boat, 60 h.p., Evinrude galvanized trailer, bait well, newly reupholstered seat, \$2,495. Call Raul, x3536 or 941-4982 evenings.

1976 14 ft. Starfish fiberglass sailboat with trailer, sails and all rigging, good condition, \$850. Call Barry, x5489 or 482-7977.

LIDO-14 sailboat, two suits of sails, tilt trailer, active fleet in Clear Lake sailing club, excellent beginner boat, dar-sailing and one-design racing. Call Hoover, x3138 or 996-7716.

Glastron boat and trailer, I/O, 21'4", walk through windshield, new 36 gal. fuel tanks, engine, outdrive, power winch, all in good condition, tandem wheels, \$3,800. Call James Bailey, 326-1623.

Sunfish sailboat, trailer, excellent condition with colorful sail, \$775. Call Jack, x6301.

Cyclone 13 sailboat, 13 ft., trailer w/spare tire, ready to sail, \$1,200. Call Michael, 486-1332 or 477-7059.

Gulf Coast AERO club, eight planes, C-152, \$23/hr. to retract Mooney \$44 hr., 140, Archer II, 172's, six place Cherokee, only \$50 to join, students welcome. Call Mark, x6301 or 554-2538.

Bayliner 2460 Trophy, 24', 305 cu. in. engine, I/O, sportsman trlr, VHF, compass, sleeps four, \$19,000. Call 482-2596 after 5 p.m.

1978 Kawasaki 400, 11K miles, fairing, saddle bags, excellent condition, best offer or will trade for small fishing boat. Call Liz, x7261 or 486-4652.

1982 BMW, under warranty, AM/FM/cassette, full fairing, hard luggage bags, low miles, \$4,000 OBO. Call Kathy, x2501 or 532-4316.

Men's 24 in. ten speed bicycle, needs tires, minor repairs, \$20. Call Dennis, x3486 or 480-5076.

Boy's 24 inch Sears Spirit, ten speed, excellent condition, \$40. Call 474-3507.

1978 Honda Hawk, 14K miles, 40 cc, recently rebuilt engine, runs fine. Call Hendrickson, x3048 or 470-2293.

1978 Suzuki GS-550, Bates Super-shield, travel trunk, excellent condition, \$500. Call Ray, x3278 or 554-7368.

1981 Honda CB750, 2000 actual miles, excellent condition, \$1,400 OBO. Call 488-4915.

Apple II monitor, four months old, \$175 OBO. Call Jeff, x4021 or 488-2405 after 6 p.m.

Commodore 64 system, C-64, 2-1541 disk drives, 1702, monitor, printer interface, software, manuals, \$550, with Legend 800 dot matrix printer, \$700. Call Herman, x4395.

Delco AM/FM stereo radio out of GMC pickup, \$25. Call St. Leger, x5159.

25" RCA color console T.V., walnut finish, good condition, \$100. Call 996-1105 after 5 p.m.

19" color T.V., old, tube-type RCA New Vista, accepts cable, working O.K. but could use tune-up, \$40. Call Fred W., x3404.

Sony Trinitron 15" color T.V., \$275 OBO. Call 538-2110.

Antique Brunswick model wind up record player, floor model with Queen Anne legs, numerous records, good condition, \$350. Call 996-1278 after 6 p.m.

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Household

Full size mattress, box springs and frame, average condition, \$50. Call Claire, 474-4310 after 5:30 p.m.

Dresser of nine drawers w/mirror, two years old, good condition, \$150. Call Vi, x4596.

Bedroom suite, 8 piece Stanley, \$395 OBO. Call 486-5331.

Sears baby bed w/mattress, excellent condition, \$40; changing table, good condition, \$20; Sears play pen, excellent condition, \$20. Call Susan, 474-3861.

Upright freezer, coppertone, good condition, see to appreciate, \$125. Call 485-2215.

Sears washer and G.E. electric dryer, both old but still running, \$50 for the pair OBO. Call 488-6931.

Coffee table, glass top, 41"x41"x15", \$50 OBO. Call 532-4219.

Full size mattress and springs, brand new, never used, still in plastic cover, \$195. Call Tami, 482-7611.

Tall Spanish carved chest of drawers, \$90; Beautiful nine ft., champagne color Koeler couch, like new, \$250. Call 488-5564.

Nichols and Stone Windsor dining chairs, #20 antique, four chairs and two captain's chairs, one slightly damaged, make offer. Call 280-0133.

Miscellaneous

Ski boots size 12 never used, used ski boots on tree, best offer; light duty corner desk with left and right shelf modules, \$20. Call Hoover, x3138 or 996-7716.

Coin collection, all framed, \$200. Call 482-7546.

1890 Lord & Taylor steamer trunk, \$150. Call 280-0454.

Wedding ring set, yellow gold, 1/3 carat diamond, \$275. Call Pauline, x6308 or 422-2437.

4 x 8 braided area rug, brown, four months old, like new, \$45. Call 482-4365 after 5 p.m.

Celestron 8" telescope, tripod, wedge, coatings, drive corrector,

Cookin' in the Cafeteria

Week of June 17 — 21, 1985

Monday — Cream of Potato Soup; Franks & Sauerkraut, Stuffed Pork Chop, Potato Baked Chicken, Meat Sauce & Spaghetti (Special); French Beans, Buttered Squash, Buttered Beans. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Navy Bean Soup; Beef Stew, Liver & Onions, Shrimp Creole, Smothered Steak w/Dressing (Special); Corn, Rice, Cabbage, Peas.

Wednesday — Seafood Gumbo; Roast Beef, Baked Perch, Chicken Pan Pie, Salmon Croquette (Special); Mustard Greens, Italian Green Beans, Sliced Beets.

Thursday — Beef & Barley Soup; Beef Tacos, Diced Ham w/Lima Beans, Stuffed Cabbage (Special); Ranch Style Beans, Brussels Sprouts, Cream Style Corn.

Friday — Seafood Gumbo; Fried Shrimp, Deviled Crabs, Ham Steak, Salisbury Steak (Special); Buttered Carrots, Green Beans, June Peas.

Week of June 24 — 28, 1985

Monday — Cream of Chicken Soup; Beef Burgundy over Noodles, Fried Chicken, BBQ Sausage Link, Hamburger Steak (Special); Buttered Corn, Carrots, Green Beans. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Beef Noodle Soup; Baked Meatloaf, Liver & Onions, BBQ Spare Ribs, Turkey & Dressing (Special); Spanish Rice, Broccoli, Buttered Squash.

Wednesday — Seafood Gumbo; Broiled Fish, Tamales w/Chili, Spanish Macaroni (Special); Ranch Beans, Beets, Parsley Potatoes.

Thursday — Navy Bean Soup; Beef Pot Roast, Shrimp Chop Suey, Pork Chops, Chicken Fried Steak (Special); Carrots, Cabbage, Green Beans.

Friday — Seafood Gumbo; Broiled Halibut, Fried Shrimp, Baked Ham, Tuna & Noodle Casserole (Special); Corn, Turnip Greens, Stewed Tomatoes.